CLAIMS:

What is claimed is:

1. An electrically powered hammer comprising:

a hollow spindle including a tool holder portion at its forward end in which a tool can be releaseably mounted for limited reciprocation;

a piston mounted within the spindle for reciprocating motion;

a ram of an air cushion hammering mechanism;

a beatpiece including a first increased external diameter mid-portion located within the spindle between the ram and the tool for transmitting repeated impacts from the ram to the tool;

a two part sleeve arrangement located within the spindle and having an increased internal diameter mid-portion for receiving the increased external diameter mid-portion of the beatpiece and a reduced internal diameter forward and rearward portions for guiding the forward and rearward ends respectively of the beatpiece in all working positions of the beatpiece; and

wherein the two part sleeve arrangement comprises a forward sleeve and a rearward sleeve which are both guided with tight radial tolerances and with slight axial play within and by the spindle and in which the forward axial movement of the forward sleeve is limited by a reduced internal diameter portion of the spindle and the forward axial movement of the rearward sleeve is limited by the forward sleeve.

2. A hammer according to claim 1 further comprising an annular seal located in front of the forward sleeve between the beatpiece and the spindle.

3. A hammer according to claim 1 further comprising an annular seal located between the beatpiece and a forward end of the forward sleeve.

4. A hammer according to claim 1 further comprising an annular seal located between the beatpiece and the forward end of the forward sleeve and the annular seal is recessed within a forward end of the forward sleeve.

5. A hammer according to claim 1 further comprising an annular seal located between the forward sleeve and the spindle.

6. A hammer according to claim 1 wherein the sleeve arrangement encloses the mid-portion of the beatpiece to form a self-contained sub-assembly, which is assembled into said one piece spindle part.

7. A hammer according to claim 1 wherein the beatpiece has a mass and the front sleeve has a mass less than or equal to the mass of the beatpiece.

8. A hammer according to claim 1 wherein the beatpiece has a mass and the front sleeve has a mass less than half of the mass of the beatpiece.

9. A hammer according to claim 1 wherein the beatpiece includes a second increased external diameter portion, rearward of the first increased external diameter mid-portion, which is engageable with a resilient beatpiece catching ring, which catching ring is mounted within the rearward sleeve, for catching the beatpiece in a forward position in an idle mode of the hammer.

10. A hammer according to claim 1 wherein an annular gap is defined between a peripheral surface of the increased external diameter mid-portion of the beatpiece and increased an internal diameter portion of the sleeve arrangement.

11. A hammer according to claim 1 further comprising a metal beatpiece impact ring mounted in the rearward sleeve behind a rearward facing surface of the first increased diameter portion of the beatpiece for absorbing reverse impacts from the beatpiece and transmitting the impacts to the rearward sleeve.

12. A hammer according to claim 1 further comprising:

a metal impact ring mounted in the rearward sleeve behind a rearward facing surface of the first increased diameter portion of the beatpiece for absorbing reverse impacts from the beatpiece and transmitting the impacts to the rearward sleeve; and

a damping ring mounted in the rearward sleeve behind the impact ring for damping the impacts transmitted from the impact ring to the rearward sleeve.

13. A hammer according to claim 1 wherein the beatpiece includes a second increased external diameter portion, rearward of the first increased external diameter mid-portion, which is engageable with a resilient beatpiece catching ring, said ring mounted within the rearward sleeve, for catching the beatpiece in a forward position in an idle mode, and the hammer further comprising:

a metal impact ring mounted in the rearward sleeve behind a rearward facing surface of the second increased external diameter portion of the beatpiece for absorbing reverse impacts from the beatpiece and transmitting the impacts to the rearward sleeve; and

a damping ring mounted in the rearward sleeve behind the impact ring for damping the impacts transmitted from the impact ring to the rearward sleeve and for catching the beatpiece in a forward position in an idle mode of the hammer.

14. A hammer according to claim 1 wherein reverse impacts from the beatpiece are transmitted from the first increased external diameter mid-portion of the beatpiece to the spindle via the rearward sleeve.

15. A hammer according to claim 1 wherein reverse impacts from the beatpiece are transmitted from the first increased external diameter mid-portion of the beatpiece to the spindle via the rearward sleeve and a resilient O-ring is located between a rearward facing external shoulder of the rearward sleeve and a fixing for axially limiting the rearward movement of the rearward sleeve within the spindle and during operation of the hammer, the first increased external diameter mid-portion of the beatpiece repeatedly abuts a forward facing internal shoulder of the rearward sleeve.

16. A hammer according to claim 1 further comprising a resilient O-ring located between a first forward facing shoulder of the forward sleeve and a first rearward facing shoulder of the spindle, the resilient o-ring urging the forward sleeve into a rearward position within the spindle to define a gap between a forward facing part of

the forward sleeve and a rearward facing part of the spindle, which gap is closed by forward movement of the sleeve on entry into an idle mode of the hammer.

17. A hammer according to claim 1 wherein the hollow spindle is formed as a single component.

18. A hammer according to claim 1 wherein the spindle comprises at least two components.

19. A hammer according to claim 1 wherein the spindle comprises a first component which houses the piston, ram and beatpiece and a second component that forms a tool holder which is removable from the first component.